

REMARKS

If the Examiner believes that there are any unresolved issues in any of the claims now pending in the application, the Examiner is urged to telephone George Wolken Jr., Esq. at (408) 567-0340 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Specification amendments

A period is added to paragraph [0014] and a hyphen removed from paragraph [0087] to correct obvious typographical errors to USPTO Patent Application Publication, Pub. No. US 2004/0137710 A1, July 31, 2004, without introducing new matter.

Claim amendments

Claim 1 has been amended to overcome the basis for the Examiner's rejection under 35 U.S.C. § 103(a), as discussed more fully in the following section.

Claims 2-24 have been amended for consistency with the amended claim 1, and also to correct grammatical inconsistencies and ambiguities, and to make consistent use of "said" in the claim language rather than mixed "said" and "the" constructions. All changes are fully supported by the specification.

New claim 35 derives from claim 9 in that one of two numerical ranges have been deleted from claim 9 and included in new claim 35.

New claims 36 and 37 derive from claim 14 in that two of three numerical ranges have been deleted from claim 14 and included in new claims 36 and 37 respectively.

New claim 38 relates to a method for making a capacitor as supported by subject matter in paragraph [0070], Fig. 9A and elsewhere.

New claim 39 relates to a method for crossing two electrical conductors while maintaining electrical isolation, as supported by subject matter in paragraph [0070], Fig. 9B and elsewhere.

Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1-29 under 35 U.S.C. § 103(a) as being unpatentable over Zybin (EP 0417294) and Goldstein (WO 00/10197). Applicants respectfully submit that the amendments to claim 1 overcome this rejection as to claim 1 and all claims dependent therefrom.

The Goldstein reference is discussed in the present application at paragraph [0003], wherein we point out that Goldstein makes essential use of recesses in the substrate as the method for concentrating and localizing copper nanoparticles prior to sintering in the fabrication of Damascene conductors for integrated circuits. The

present invention has no requirement for recesses including trenches and the like to concentrate the nanoparticles and step (a) of the amended claim 1 makes this explicit, thereby distinguishing Goldstein.

Zybin deposits droplets onto a substrate in a pattern, but performs sintering/fusion by means of a heat treatment assembly that can be an inductor, radiator or laser (Zybin, col. 5, lines 34-37). That is, Zybin teaches a laser as one among many methods for bathing the nanoparticles and the surrounding substrate in sufficient heat. Paragraph [0009] of the present application describes some disadvantages of the blanket, non-localized heating as employed by Zybin, in contrast with the localized heating provided by the present invention. While it is not explicitly stated in paragraph [0009], it is obvious to those with ordinary skill in the art that heating with a laser can be localized or non-localized, with non-localized laser heating having essentially the same disadvantages as described in paragraph [0009].

In addition, the pattern created by the Zybin method is completely determined by the deposited pattern of nanoparticles since the heating method does nothing to add to the precision or to tailor the properties of the resultant structure. In contrast, the use of one or more localized laser spots in the present invention adds further possibilities for adjusting or tailoring the shape and/or properties of the deposited structure over and above the shape and/or properties determined merely by the pattern of droplet deposition, as in Zybin. Examples of the use of localized laser spots to adjust the properties of the

resultant structure pursuant to some embodiments of the present invention is the use of non-Gaussian and/or pulsed laser spots as stated in paragraph [0010] and elsewhere.

The use of localized laser spots in the present invention is made explicit by the inclusion of step (b) in the amended claim 1, further distinguishing both Zybin and Goldstein. Since the other claims pending in this application depend on claim 1, applicants respectfully submit that all claims are thus distinguished from the prior art and patentable.

Applicants respectfully refer to MPEP § 2143.03 which requires "To establish *prima facie* obviousness of the claimed invention, all the claim limitations must be taught or suggested in the prior art. ... All words of a claim must be considered in judging the patentability of that claim against the prior art." (citations omitted) (emphasis added). Applicants respectfully submit that the claim elements of depositing droplets containing nanoparticles onto a substrate lacking recesses followed by treatment with localized spot(s) of laser light are not taught or suggested by the prior art.

Applicants also respectfully refer to MPEP § 2143, "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." (emphasis added). Applicants respectfully submit that there is no teaching or suggestion in the art for

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combining the steps of the present invention as described
and claimed, thus rendering all claims patentable.

Conclusion

In view of the above amendments and arguments, the
applicants respectfully submit all claims 1-29, 35-39 are
presently in condition for allowance. Accordingly, both
reconsideration of this application and its swift passage to
issue are earnestly solicited.

Respectfully submitted,


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